



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,109	11/21/2003	Svetoslav D. Tzvetkov	NVDA P000795	1920

26291 7590 07/03/2006

PATTERSON & SHERIDAN L.L.P.
595 SHREWSBURY AVE, STE 100
FIRST FLOOR
SHREWSBURY, NJ 07702

EXAMINER

NGUYEN, PHU K

ART UNIT	PAPER NUMBER
----------	--------------

2628

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/719,109	Applicant(s) TZVETKOV, SVETOSLAV D.	
	Examiner Phu K. Nguyen	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 11-17, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 7, 9-10, 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.



PHU K. NGUYEN
PRIMARY EXAMINER
GROUP 2300

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 8, 11-17, 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by MOREIN (6,999,076).

As per claim 1, Morein teaches the claimed "method of performing early stencil rejection" (Morein, conditional on non-Z test for early stencil rejection; column 5, lines 21-24), comprising: "comparing a first stencil function used to generate a stencil result to a second stencil function" (Morein, the first stencil function is one of the non-depth fragment tests; (Morein, column 5, lines 32-44); and "modifying coverage data when the first stencil function matches the second stencil function to produce modified coverage data" (Morein, the update of the coverage data on the hierarchical Z buffer; column 6, line 45 to column 7, line 5).

Claim 2 adds into claim 1 "shading a fragment associated with the modified coverage data" (Morein, the shading operation performs on the objects subjected to the stencil test; e.g., light shading technique, column 2, lines 40-50).

Claim 3 adds into claim 1 "the stencil result includes compressed data representing stencil test results for at least two stencil values" (Morein, the stencil results from the comparison test represent the Pass and Fail values; Morein, column 6, lines 24-32).

Claim 4 adds into claim 1 “the first stencil function is a predicted stencil Function” (Morein, the non-Z_test predicts whether a fragment will be incorporated into a frame buffer or will be discard; column 4, lines 1-4).

Claim 5 adds into claim 1 “modifying coverage data includes negating a portion of the coverage data when the stencil result indicates a stencil value corresponding to the portion of the coverage data failed a stencil test” (Morein, negating or culling the fragment failing the stencil test; column 6, lines 30-32).

Claim 6 adds into claim 1 “modifying coverage data includes culling at least one fragment associated with the modified coverage data” (Morein, column 6, lines 30-32).

Claim 8 adds into claim 1 “determining that stencil writes are disabled prior to modifying the coverage data” (Morein, the stencil data input is terminated before the Z-test for modifying depth data; column 7, lines 5-20).

As per claim 11, Morein teaches the claimed “early stencil rejection system”, comprising: “a storage resource configured to store stencil results” (Morein, Z-buffer 180); and “a test unit coupled to the storage resource, the test unit configured to read a portion of the stencil results and to modify coverage data, producing modified coverage

Art Unit: 2628

data" (Morein, the update of the coverage data on the hierarchical Z buffer; column 6, line 45 to column 7, line 5).

Claim 12 adds into claim 11 "the test unit is configured to compare a stencil criterion to a stencil function" (Morein, the result of non-Z test is later compared to Z test; figure 6).

Claim 13 adds into claim 11 "an aggregation unit coupled to the storage resource, the aggregation unit configured to receive stencil data and produce stencil results" (Morein, the frame buffer 170).

Claim 14 adds into claim 13 "a stencil test result unit coupled to the aggregation unit, the stencil test result unit configured to generate the stencil data by applying a stencil criterion to at least one stencil value" (Morein, column 6, lines 24-32).

Claim 15 adds into claim 11 "a fragment shader is coupled to the test unit, the fragment shader configured to receive the modified coverage data and fragment data, producing shaded fragment data" (Morein, the shading operation performs on the objects subjected to the stencil test; e.g., light shading technique, col. 2, lines 40-50).

Claim 16 adds into claim 11 "a raster operations unit coupled to the stencil aggregation unit, the raster operations unit configured to provide stencil data to the stencil aggregation unit" (Morein, the render backend 160).

Claim 17 claim a method base on the system of claim 1, therefore, it is rejected under the same reason.

Claim 19 adds into claim 17 "updating the stencil data when a stencil value has changed" (Morein, column 6, lines 24-29).

Claim 20 adds into claim 17 "updating the stencil data when the predicted stencil function has changed" (Morein, column 5, line 32 to column 6, line 30).

Claims 7, 9-10, 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The allowable feature in claim 7, and similar, claim 18, is "determining whether the first stencil function matches the second stencil function; determining whether the second stencil function is a subset of the first stencil function if the first stencil function

Art Unit: 2628

does not match the second stencil function; and modifying the coverage data if the second stencil function is a subset of the first stencil function”

The allowable feature of claim 9 and its dependent claim 10, is “receiving a stencil command including a stencil operation which disables stencil writes that were previously enabled; outputting a sync token, the sync token including a copy of a sync count; and incrementing a counter used to generate the sync count.”

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu K. Nguyen whose telephone number is (571) 272 7645. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (571) 272 7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2628

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Phu K. Nguyen
June 21, 2006


PHU K. NGUYEN
PRIMARY EXAMINER
GROUP 2300